Dear Sir,

We would like to thank you for your comments and for your remarks in the reviewer’s reports. A new manuscript version was uploaded on the GMD website, which included corrections requested by the reviewers. A point-by-point reply to reviewer’s comments is also provided. Please do not hesitate to contact us for any further information. We wish you a pleasant holiday season.

Sincerely yours,

Abderrahmen Khalifa
Anonymous Referee #1

*General comments*

Very generally, I find this paper very long and very technical. I wonder if this is really necessary. It is very much report like (we did this, we did that, ...)

**Answer:** The paper as submitted resulted in corrections requested by reviewers, including the addition of details in equations. The paper is therefore longer but helps its readability.

A general comment as reviewer: why are text, figures and tables separated? In a printed paper these are compiled together to improve readability - why is readability not an issue when reviewers are involved? I can see no reason for such splitting - the age auf typewriter has long gone ...

**Answer:** The paper was submitted according to the GMD instructions to authors.

*Specific – technical – comments:*

**Question**

The abstract should focus more on the results, the outcome of the study and not list in short the content.

**Answer:** The abstract was modified accordingly.

**Question**

Line 10: Grammar? “… with all the energy interactions, with two approaches to evaluate traffic incidence on RST.”

**Answer:** The text was corrected accordingly.

**Question**

Generally the language is ok, but there are still several spelling mistakes in the text.

**Answer:** spelling mistakes were corrected when identified.

**Question**

Line 58: “other ones”

**Answer:** The text was corrected accordingly.

**Question**

Line 69: textdegreeC !?

**Answer:** The text was corrected accordingly.
Question

Generally: between a number and a unit has to be a space (in tex \, is a good choice to achieve a fixed width). Furthermore it is ok to say for instance “between 2 and 3 °C”. I would prefer saying “between 2 °C and 3 °C”, but this is not mandatory. However, the authors are mixing the style, one time they use one style the next line the other one, this has to be harmonized.

Answer: The text was corrected accordingly.

Question

Line 81 – 82: these 2 °C two times is confusing – why not saying that the result by Paramenter & Thornes was confirmed by Chapman et al. ?

Answer: The text was corrected accordingly.

Question

Line 100: the abbreviation TEC should not be introduced in the heading but in the text (this is especially ugly as in 3.1 again the unabbreviated version is used …).

Answer: The text was corrected accordingly.

Question

Line 116: for readability $(\rho c)_{\text{road}}$ is maybe nicer?

Answer: The text was corrected accordingly.

Question

Line 118: the unit is wrong: it has to be J m$^{-3}$ K$^{-1}$!

Answer: The text was corrected accordingly.

Question

Line 123: what’s the need for this statement?

Answer: The text was changed as suggested.

Question

Line 213: I find the phrase of “Inspired by …” somewhat crude.

Answer: The text was changed to remove the word Inspired.

Question

Line 236: “have”!

Answer: The text was corrected accordingly.
Question

Equation (13) and many other: a very general comment. Aren’t these equations empirical relations? So they are not resulting from fundamental equations (like \( F = m \times a \)); so, wouldn’t it be more appropriate to use a \( \equiv \) instead of a \( = \)?

Answer: These equations are indeed empirical. The text was corrected accordingly.

Question

Lien 306: “The remainder …” ???

Answer: The text was corrected accordingly.

Question

L 352: “profile”

Answer: The text was corrected accordingly.

Question

L 407: “implement”

Answer: The text was corrected accordingly.

Question

Chapter 5: Why not just say “Results” and delete discussion?

Answer: This chapter included both results and their discussion. The title is then maintained.

Question

L 457: “an urban”

Answer: The text was corrected accordingly.

Question

L 492: delete “not enough …”

Answer: The text was corrected accordingly.
Anonymous Referee #2

**Question**

L118 Equation is missing an "m" for J m^-3 K^-1.

**Answer:** The text was corrected accordingly.

**Question**

L161 and L162 subscript "road_wat" should probably be "road_wet".

**Answer:** The subscript "road_wat" stands for the presence of water.

**Question**

L251 What is meant by "bolting"? Traffic congestion?

**Answer:** Bolting indeed stands for traffic congestion.

**Question**

L438 and L439 In this case the dates can be easily inferred, but oftentimes this date notation is ambiguous with respect to days and months. Better: 20 November 2014 and 17 December 2014.

**Answer:** The text was corrected accordingly.

**Question**

L510 and L534 The authors repeatedly refer to "first approach" and "second approach", assuming the reader remembers at all times which is which. A more mnemonic naming convention would be helpful.

**Answer:** The text was modified accordingly with a mnemonic naming convention.

**Question**

Conclusions: In the conclusions I am missing a summary statement by the authors how their approach performs in practice. Does this addition to the model give better estimates of RST?

**Answer:** A short statement was added to the conclusion.